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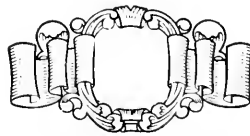
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# The Value of a Railroad Security

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This list is arranged in the order of proper reading. The books are accompanied by a series of test questions, key problems and analyses outlines, enabling the student to apply the knowledge acquired to immediate stock market and investment conditions.

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|--|--|
| 1. <i>Developing Financial Skill</i>           | 11. <i>Investment Securities</i>                                 |
| 2. <i>Forces Which Make Prices</i>             | 12. <i>Business Cycles</i>                                       |
| 3. <i>Manipulation and Market Leadership</i>   | 13. <i>Measuring and Forecasting General Business Conditions</i> |
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| 9. <i>Oil Securities</i>                       | 19. <i>Internal Financial Management</i>                         |
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## CHAPTER I

### “WHICH IS WHICH?”

*“Until the investor’s interest is accorded just and full consideration, regulation cannot hope to attain its own set purpose and proper aim, which is the attainment of an adequate public service at reasonable rates.”*

—WILLIAM Z. RIPLEY,

Professor of Economics, Harvard University.

### **Underlying Considerations**

Railroad securities, notably railroad bonds, have for many years enjoyed the favor of investors, for reasons which are well established. For over half a century of the greatest period of development which any nation has ever witnessed, the railroads of the United States have proved themselves to be not only the pioneers in the opening and developing of new territory, but also the main arteries for the constantly increasing commerce of the nation. In railroad securities, more than in any other form of corporate security, are to be found the elements which make for stability in value. The railroads have proved themselves necessary to the development of the nation and are directly related to public necessity and convenience.

The railroad companies, as the employers of so large a number of the laborers of the nation, are protected in that the prosperity of each is closely related. Further security is found in the fact that so great a proportion of the wealth of the nation is invested in the securities of the railroads. Perhaps the greatest safeguard protecting railroad securities is found in the cost of the railroads themselves and the impossibility of replacing them. It is commonly known that the terminals alone in the large commercial centers of the country are not capable of being duplicated, irrespective of the cost involved. Furthermore, it appears

highly improbable that any new invention in the aid of transportation will be discovered which will not readily adapt itself to the steam railroad of today.

These underlying considerations merit emphasis at the beginning of this discussion in view of the current controversies which surround railroads and the wide-spread apprehension which has seized upon investors in rail securities.

### **Essentials in the Railroad Problem**

What are the essential elements concerning a railroad which, when analyzed, afford clearer insight into its earnings and a more accurate estimate of the value of its securities?

The railroad's business is to supply transportation, which requires a property — roadbed, rolling stock, terminals, etc. — and a management which directs its operations. The funds required can be derived from two sources, rates charged shippers and capital supplied by investors.

This appears simple enough. But other elements represent interests often, if not always, in opposition.

Shippers have naturally desired low rates, and they have not hesitated to press their claims vigorously, and at times unscrupulously, before State and Federal Commissions and legislative bodies when rates and rate changes were under consideration. Public opinion, for reasons which become clearer as we proceed, has been apathetic, if not openly hostile, toward the claims of the railroads. Hence inroads have been made in this way upon earnings.

Labor has likewise pressed its claims. The employes on our railroads have been, as compared with other industries, highly unionized.

### **Position of the Labor Unions**

As a result of the highly organized state of railroad labor unions in this country they, or their representatives, have taken a much larger interest in the operating and financial problems than has labor in perhaps any other industry.

Their very highly organized state gave them great power during the war. It brought rapid wage advances, although it must be said that the advances in this industry did not compare with those in the building or manufacturing industry. Where organization did count, however, was in the post-war readjustment. The labor unions contended that reductions in wages should be accompanied or preceded by reductions in rates which would have a material effect in lowering living costs.

This strongly entrenched position of the labor unions has brought forth much criticism. The whole situation should be looked at with a broad mind, however. It is not true that labor has no interest in the success and failure of our railroads, as has been often stated. The plan of railroad operation brought forth by the railroad unions, the “Plumb Plan” likewise cannot be condemned as a whole. It has weak points and strong points just as has the Esch-Cummins Bill. Some of its principles will doubtless be carried out in the consolidations and mergers of the next two to five years.

While railroad unions have held up Congress and the public in an attempt to enforce their demands this cannot be said to have been any worse than the attitude assumed by the financial interests toward such railroad organizations as the New York, New Haven & Hartford, the St. Louis-San Francisco, and other minor properties. The attitude of the railroad executive in their dealings with the labor unions has given rise to the general understanding that the interests of the two are mutually antagonistic. This is one of the situations that has got to be ironed out in the next few years before the railroads can once more resume a sound position.

### **Activities of the Financial Interests**

The financial interests have not been less active, and oftentimes not less selfish and narrow, than the shippers and the labor unions.

The establishment by the railroads during the past decade of the community of interest principle has resulted in the redistribution of ownership, in furtherance of which, scores of millions

of dollars of stocks of railroads have been acquired by or in the interest of large systems. This movement likewise has resulted in the creation of scores of millions of bonds and other forms of indebtedness, including collateral trust bonds, guaranteed certificates, etc. The railroads of this country, have in large measure been rebuilt during the past ten or fifteen years, and their physical and financial rehabilitation has called for the application of vast sums, which again has necessitated the selling of hundreds of millions of new securities of existing railroads.

It is not unnatural that, during this period of extensive financing, many millions of securities have been issued without justification so far as relates to existing values or earning capacity. High finance operations, or it might better be termed, low finance operations, have been followed by financial scandals.

### **Methods of Operation**

The development of the conditions described above has been possible in this country because of the fact that the railroads, public carriers of passengers and goods, have been under the control of a relatively few large stockholders. In the past twenty years railroad securities have become more widely held by investors than probably any other type of security issues. Although each stockholder is entitled to a vote at the meetings of the corporation, this prerogative is seldom exercised. A concentrated ownership of not over 10% to 15% of the total outstanding capitalization allows undisputed control of the property.

Under such conditions, with the interlocking directorates of the past, it has been possible for large financial interests, through very little actual ownership of stock, to control the operations of practically all our large railroad systems. This has naturally brought with it misuse of the power involved and has caused many railroad wrecks where, under careful management, successful operation could have been maintained without trouble.

In perhaps the majority of cases the difficulties have been

brought about by loading down railroad systems with unprofitable branches, feeders, or other types of carriers such as street railways, for example. The case of the St. Louis-San Francisco is interesting. This company through the early 1900's persisted in issuing bond issue after bond issue for the purpose of expanding and buying branch roads, which, presumably, were bought from interests close to the company at prices considerably in excess of what had originally been paid for them. Under gradually advancing commodity and wage prices these newly acquired properties were unable to earn a satisfactory return on the inflated values that had been placed on them. The net result was to place the entire system in receivership—a system having tremendous possibilities in itself, if left alone; running through the most fertile and perhaps the most promising region in the United States.

The N. Y., N. H. & Hartford R. R. is another illustration of similar tactics, although in a different situation. Here was a road with a relatively short haul, tapping the densest industrial section of the United States up to the war period. Those in control, not satisfied with a smoothly operated property—the stock of which had risen to above \$200 a share—set about to control the entire railroad situation in New England. This control was based on not only steam railroad operations but electric railway operations as well. It was evidently thought that almost any price could be paid for such additional railroads and electric railways and, on account of economies of consolidation, a good return still be earned on them—at least sufficient to satisfy public ethics. This scheme, however, ran up against a rapidly growing commission control of public utilities. The high finance involved in its operation brought a top-heavy capitalization, resulting in receivership of many subsidiaries and the financial decline of the New Haven itself.

### **Financial Pyramiding**

Small groups of capitalists are frequently found to control, through a relatively small investment of capital, large systems of

railroads where scores of millions of dollars of bonds of such railroads are placed in the hands of bona fide investors who have no protection against reckless financing or imprudent management on the part of the small group in control, although such may result in the impairment of the safety of their investments. The amount actually invested in a railroad might be \$110,000,000, represented in securities by \$10,000,000 of stock and \$100,000,000 of bonds and other fixed-interest but non-voting securities, and not only the market value but also the intrinsic value of the \$100,000,000 of non-voting securities, might be placed in jeopardy by the high finance operations of a few who own control of the \$10,000,000 of capital stock.

This kind of pyramiding is like trading on a slim margin, so far as the stockholders are concerned.

### **Interest of Security Owners**

The capitalization of our railroads is roughly \$20,000,000,000 of which somewhat over \$12,000,000,000 consists of bonds, or three-fifths. As long as interest is paid on bonds or notes, the bond or noteholder has no voice in the management of a company. It is entirely in the hands of stockholders. As we have shown above, on account of the concentration of financial control of our large railroad systems converging in the hands of a few, these few controlled operations as a whole.

Out of the developments of the past few years, and the resulting attempts to put our railroads on a sound foundation, bondholders have been forced to take cognizance of the situation outlined above. The result has been the formation of what has been known as the Security Owners Association. This Association is a voluntary one, joined by railroad bond and noteholders throughout the country. It has as its officers some of the men in this country who have given much thought to railroad problems and who are now taking an active discussion and participation in the proposed financial schemes to rehabilitate roads. This increased interest augurs well for the future.

If we are to place our railroad industry on a stable foundation

all those interested from a financial, service, or employment standpoint, must get together. No solution will be found favoring one group at the expense of the others.

### **False, or Misleading, Representations**

Bankers, both of large and small reputation, have repeatedly placed bonds in the hands of investors through issuing circulars which are misleading, to say the least. It is true that reliance is placed on the high standing of some of the banking firms and the investor is protected to the extent that these firms would not offer for sale, securities which they did not believe to be safe as to principal and interest. While the representations made in the circulars are usually quoted from statements made by officers of the railroad companies and are based largely on facts, and where figures are given only facts are stated, nevertheless the facts presented repeatedly convey an entirely false impression as to the investment merit of the bonds, and the bankers themselves must know that the circulars are misleading.

These practices, particularly the more glaring examples of high finance like “Rock Island” and “Frisco,” have aroused distrust necessarily. And the old policy of secrecy, under which only such information was furnished as was legally necessary, served to strengthen this distrust and leave the public mind susceptible to catch-penny phrases, slogans, and by-words. Every demagogue and yellow journal which chose to attack corporations has fed the phrase “water-stock,” for instance, to the unthinking, who accepted it at face value and applied it to all railroads alike. Thus did the odium pertaining to *certain* financial mispractices come to attach itself, more or less, to *all* railroads.

### **Position of the Investor**

These well organized and persistent activities of shippers, labor unions and financial interests have at times so engrossed attention that the important functions and rightful claims of the investor have been all but lost sight of. The investor's

interests are neglected in this matter, it seems to me, on the theory, I presume, that the investor is of mature age and can care for himself; being expected to consider what comes to him as inevitably his just desserts because of the fact that the investment of funds is by no means an exact science.

More specifically, much of the injustice and deception practiced upon investors and the losses which occur can be traced to several prominent causes, as follows:

1. The shortsightedness of the public, shippers, and unions. Methods have been employed by these groups which defeat their own best interests viewed broadly.
2. The inelastic system of regulation enforced by the Interstate Commerce Commission. Failure to take account of increased transportation needs, due to the country's growth, and to mounting costs in consequence of world-wide changes outside of railroad control, are two specific ways in which this inelasticity has been shown.
3. Directors or Trustees frequently have not performed their fiduciary duties. This, in the final analysis of railroad development, may prove to have been the most important.
4. Stockholders fail often-times to take sufficient personal interest in the affairs of their companies.
5. The change in economic conditions which altered the prices of capital and hence reduced the prices of fixed interest-bearing securities from 1900 to 1920.
6. Investors generally are guilty of too great cupidity and ignorance in the matter of investments and thus become easy prey for self-seeking or unscrupulous financiers.

### **Present Outlook**

What has been said so far indicates the causes for the wide spread apprehension of investors in railroad securities. But their recital, involving as it does dark chapters of labor intrigue and financial piracy, must not be allowed to obscure the under-



lying considerations with which this discussion commenced — the basic importance of railroad service and the solid values behind railroad securities. Particularly is this the case at present.

Will the railroads come back? Will their securities again become the chief medium of investment for the conservative? What does the future promise the railroads or the public?

These questions embody what is back in the minds of a vast army of investors directly or indirectly interested in railroad securities. The business of manufacturing transportation is no longer an experiment; it now approaches the exactness of a science. Railroads have passed through successive stages of organization, development, consolidations, exploitations, wreckings — all of which has finally led to standardization. Every road possesses a natural monopoly in the traffic of the territory it serves. That business is guaranteed, not for today, not for this year, but for all time; and furthermore, there is a promise there will be an increase in traffic proportionate to the growth of population and trade of these United States.

The public has come to appreciate with some degree of vividness the importance of transportation, and its essential costs; so much so that one may claim with right that the investor has become at length a party in interest. Recent legislation places him upon a decidedly more substantial basis. Perhaps it may not be too strong to say it will emancipate him.

This recognition of his functions and rightful claims enables the investor to face the future with increased assurance. But, in addition, it affords him excellent opportunities for the exercise of foresight in his selection of railroad securities.

## **Market Prospects**

In the stock market, financial and commercial leaders of this great country register continuously, in terms of dollars and cents, their estimate of the importance of the influence of coming events upon general business. This estimate is founded not alone upon financial and commercial facts, actual or anticipated,

but also based upon the interpretation by these men of the attitude of the general public.

The stock market with its usual sound foresight will forecast accurately the ultimate outcome long before, and not after, the event. What effect will this have upon the present level of the various railroad securities?

There are railroad securities which possess such sound investment characteristics as these:

1. The balance sheet of each company shows a good balance of current assets over current liabilities.
2. The property of each company is in a high state of physical development. The integrity of the net earnings as reported by these companies taken as a whole, cannot be questioned, as their average maintenance charges have been very large.
3. Each company operates a large system of railroads, and owns terminals of great value.
4. Each company earns annually a large margin over its fixed charges, and has the direction of a management both honest and efficient.

These stocks are readily marketable, are generally considered by the banks as first-class collateral, and they are certainly capable of considerable appreciation in value. They are offered to investors at attractive prices, at least a great many of them.

There are likewise among the railroad securities, stocks and bonds which no supporting hand of Government can be expected to maintain upon an investment level. These are also offered to investors daily.

Which is Which?

## CHAPTER II

### THE USE OF STATISTICS

#### **The Basis of Value**

The investor does not find the mere name of a security — bond, preferred stock, or common stock — at all the proper answer to the question raised in the preceding chapter, "Which is Which?"

The name "bond" does not carry with it any guaranty of quality. So far as the term is accepted as a synonym of protection or safety, it is, in this day, a misnomer. In recent years so many new kinds of railroad bonds have been introduced into our market, that the investor must use great care lest, in purchasing a bond, he finds himself possessed of a security far inferior in grade to many railroad stocks in which he would not choose to invest.

There are outstanding today various kinds of collateral bonds; bonds the joint obligation of two or more railroads; bonds the joint obligation of railroad and coal companies; participating bonds; convertible bonds; debenture bonds with no security; debenture bonds collaterally secured; debenture bonds to be secured by mortgage in the event of a new mortgage being placed upon the property in the future. The names of bonds vary, as prior lien, general lien, divisional, consolidated, unified, first consolidated, first mortgage, second mortgage, third mortgage, extension mortgage, plain "bonds," etc. Needless to say, a third mortgage bond of one company may be infinitely more secure than a first mortgage or prior lien mortgage bond of another company. "Bond" is a generic term as "bird," "plant," "flower." This is taken up in detail in the Textbook, "Investment Securities."

The value of a security must rest today, more than ever before, upon the earning capacity and the character of the

management of the issuing company. A bond may be a first mortgage on property, the value of which is much greater than the face value of the bonds issued against it, yet this bond may suffer considerably in the market, owing to the fact that the issuing company has outstanding other bonds issued against insufficient security, the result being that, if such company's credit becomes impaired, all the bonds of the company, good and bad alike, will suffer depreciation. The value of a bond, while based upon the value of the security behind it, rests on the fact that this value depends largely upon revenue-producing ability.

### **Correct Use of Statistics**

Since earning power represents the real source of a security's value, too great emphasis cannot be laid upon the importance to the investor of a right understanding of the methods by means of which, through the analysis of railroad reports, he can secure sound knowledge of this earning power.

Economical operation of every railroad, every corporation, every factor and shop, and every wholesale and retail store would be well nigh impossible were the operating official, general manager, or head of department, not kept fully posted by statistics relating, as the case may be, to car mileage, ton mileage, cost of production, cost of distribution, etc. It is safe to say that, in our industrial life today, the intelligent use of statistics plays a more important part than ever before in leading to economies. The very life of many successful business enterprises today is due to the fact that their managers have been alive to the advantage of a correct use of statistics.

It is safe to say that many unsuccessful investors have only themselves to blame, in large measure, for the losses which they suffer year in and year out. To the investor the free and sensible use of statistics will bring more satisfactory results, as such use produces results satisfactory to the business manager. Investors are constantly deceived by time-worn phrases such as "the bonded debt is only \$5,000 per mile," "the ratio of operating expenses is only 58 per cent," "the stock is earning thus

and so." The investor must use statistics intelligently to learn what they disclose as well as what they conceal; what they admit as well as what they deny.

### **Railroad Reports**

All too few details are given in many railroad reports of today as to the physical characteristics, the character of rail and ballast, the number of grade crossings, the extent and nature of curvatures and gradients, and the number and character of bridges, culverts, etc., etc. Knowledge of all these, as well as of the character and density of traffic and of the general conditions attendant upon the obtaining and conduct of such traffic, is essential to the complete understanding of the merits of railroad securities; *yet invaluable information bearing upon their relative merits can be acquired by comparison of the income accounts* of the different roads. While the peculiar and varying conditions under which each individual road must be operated impair comparisons, yet analysis points to certain undisputed conclusions and gives an index to the truth.

There are many railroads of which it must be said that their "cost of road, structures, and equipment," as exhibited in their financial statements, includes very large items, representing altogether fictitious values. On the other hand, it must be stated in fairness that, owing to the large expenditures for improvements, additions, equipment, etc., which for a series of years have been deducted from their surplus income, the "cost of road, structures, and equipment" of a large number of railroads is today understated in their balance sheets. Where fictitious values are given it will be found that these result from the charges, dating perhaps long ago, of excessive amounts for "discount on bonds," "reorganization expenses," and through the charging for construction of amounts which today would be considered fabulous. Per contra, taken in a strict sense, "bonds and stocks outstanding" represent in many instances little save an equity in earning power. So it becomes of prime importance to ascertain the "earning power" of each railroad in order that through the comparison of the "earning power" of

each with that of the other, certain conclusions as to the respective merits of their bonds and stocks may be deduced.

### **Uniformity of Reports**

As a rule, this comparison can be made easily and intelligently owing to the uniformity in this regard of the reports submitted by the railroad companies. Recent legislation by Congress has resulted in establishing in the reports of railroads a practical uniformity which has never before existed. While the balance sheets of many railroads are not as complete and satisfying as they should be, yet individual investigation into the financial condition of any road can readily be made, and, as a rule, its strength or weakness financially ascertained.

### **Accounting Regulations of Interstate Commerce Commission**

It is necessary to point out that the legislation enacted by Congress in June, 1906, has given absolute power to the Interstate Commerce Commission in its discretion to "prescribe the forms of any and all accounts, records, and memoranda to be kept by carriers subject to the provision of this Act, including the accounts, records, and memoranda of the movement of traffic as well as the receipts and expenditures of money. The Commission shall at all times have access to all accounts, records, and memoranda kept by carriers subject to this Act, and it shall be unlawful for such carriers to keep any other accounts, records or memoranda than those prescribed or approved by the Commission.

The provisions of this Act in so far as they relate to accounting for receipts and disbursements went into effect July 1st, 1907. The reports issued by the railroads concerning operations prior to July 1st, 1907, were made up on the old basis, and the statements and statistics given in this book so far as they relate to operations prior to July 1st, 1907, are made up on the old basis.

On July 1, 1914, a complete revision of the accounting system of railroads was ordered by the Commission. The readjustment of the various accounts makes comparison with former years extremely difficult.

The changes in accounting when their operations are perfected will cause several changes to be made in the suggestions and remarks embodied in the various Chapters; yet, as a whole, the integrity of the discussion on the analysis of railroad reports will remain virtually without change.

Briefly, the instructions issued by the Commission under the provisions of the Act above referred to, stipulate that, beginning July 1st, 1907, charges for construction, additions, betterments, equipment and all such charges of an extraordinary nature and not strictly operating expenses shall not be charged to Maintenance Expenses or otherwise included in Operating Expenses so as to constitute a deduction from Net Earnings. Expenditures of this nature may at the discretion of the railroad be either capitalized or deducted from the year's surplus as ascertained after all fixed charges and dividends have been deducted. For example, beginning July 1st, 1907, no charges are allowed to be made to Maintenance of Way for improvements or betterments to track or structures where such improvements or betterments exceed in each case \$200; also in the case of Maintenance of Equipment, the cost of new equipment

except where purchased for replacement, is not allowed to be charged (as in the past it has frequently been charged) to that account. It was the purpose of the Commission to establish definite rules and regulations which should govern "Renewals" and the "Depreciation" accounts, the purpose of these accounts being that "all the cost of maintenance and not more than the cost of maintenance shall be charged to the maintenance accounts of Operating Expenses." The importance to the investor of the new accounting rules established by the Interstate Commerce Commission cannot be overestimated. To quote from a communication by the Interstate Commerce Commission, "there will arise a general confidence in railway securities which will give them a sure and stable value, provided the enterprise which they represent is a sound commercial enterprise."

The new system when fully established not only will result in close uniformity in the reports of all the railroads, but also will tend to prevent deception in either undercharging or overcharging Maintenance Expenses on account of repairs and renewals.

For the fiscal years ending June 30, 1908, to June 30, 1916, the accountants of the different railroads were privileged to base their charges on account of depreciation of equipment upon what they deemed a fair basis, stating in their reports to the Interstate Commerce Commission the exact basis upon which this depreciation was computed. Thereafter, as will be discussed in the Chapter "Maintenance of Equipment," each railroad in its report to the Commission was called upon to justify its charges on account of depreciation of equipment. It is understood that the Interstate Commerce Commission will in due course issue definite instructions in regard to this depreciation charge on equipment which will thereafter apply to all the railroads. To the extent that today the depreciation charge varies on the different railroads, the present accounting scheme lacks uniformity.

The Commission on July 1, 1914, issued a re-classification of Operating Expenses, which will be referred to hereafter. This new classification of expenses provides for the creation of depreciation reserves for railroad property other than equipment by means of charges to operating expenses. The use of these depreciation accounts is for the present optional and it will likely be some years before a basis of comparison may be determined.

In the statements of Income Account in this book taxes are included in Fixed Charges as explained in Chapter XI. Reference is here made to this fact for the reason that according to the rules of the Interstate Commerce Commission, since July 1, 1907, taxes have been deducted from Net Operating Revenues and are not considered as a part of the Fixed Charges.



## CHAPTER III

### INCOME ACCOUNT\*

#### Items Included

The income account, or statement of the earnings and expenses for the fiscal period, is now given in railroad reports as follows:

Operating Revenues .....	\$10,000,000
Operating Expenses .....	6,000,000
	\$4,000,000
Net Operating Revenues .....	\$4,000,000
Taxes .....	375,000
	\$3,625,000
Operating Income .....	\$3,625,000
Other Income .....	200,000
	\$3,825,000
Deductions from Income or Fixed Charges:	
Interest .....	\$1,500,000
Rentals .....	75,000
Sinking Funds, etc. ....	25,000
Hire of Equipment .....	25,000
	\$1,625,000
Total Fixed Charges .....	\$1,625,000
	\$2,200,000
Net Income .....	\$2,200,000
Dividends .....	1,000,000
Additions and Betterments .....	700,000
Surplus .....	500,000

#### Classification and Terms Used

For the sake of uniformity the general accounts as given in the statements of Income Accounts in this book are arranged in order and styled as explained on following page.

\*Note: "Accounting Regulations of Interstate Commerce Commission," p. 17.



<b>Accounts Prescribed by Inter- state Commerce Commission</b>	<b>Terms Used in This Text</b>
Operating Revenues	<i>Operating Revenues</i>
Operating Expenses	<i>Operating Expenses</i>
Net Operating Revenues	<i>Net Operating Revenues</i>
Taxes	<i>Taxes are included in Fixed Charges and the amount thereof specified</i>
Operating Income	<i>Not used (see under Taxes)</i>
Non-Operating Income	<i>Other Income</i>
Gross Corporate Income	<i>Gross Income</i>
Deductions from Gross Income or Fixed Charges	<i>Fixed Charges</i>
(Under this heading are included "Hire of Freight Cars"—Dr., and "Rent of Equipment")	<i>(Under this heading are included "Hire of Freight Cars"—Dr., and "Rent of Equipment" and "Taxes," the amounts being specified)</i>
Net Income	<i>Net Income</i>

To any one at all familiar with railroad reports each of the above items is self-explanatory. Only a brief survey is necessary. In ascertaining the earning power or the ability of a road to pay interest and dividends, the most important item of the Income Account to be considered is the Operating Expenses.

### **What Income Account Covers**

Operating revenues are revenues received from the direct operation of the railroad. Returns on stocks held in the treasury of the company are not included as operating revenues. Rentals received from loaning equipment to other roads are not so included. It is simply the gross revenues received from the transportation of goods and passengers.

Operating expenses, which will be discussed in detail in the next chapter, cover all the expenses necessary to carry on the operations above described. This it will be seen means not only running trains but running the organization as well and the maintaining of both the organization, the equipment, and the roadbed of the company.

The balance between these two items is known as New Operating Revenue. In other words, it is the balance left from

the carrying of commodities of all types after necessary expenses to obtain them and carry them have been deducted.

Other Income, or Non-Operating Income, is income received from all outside sources — dividends and interest on securities held, revenue from the operation of dining cars and rentals received from the hire of the road's equipment by other properties.

Gross income is simply the gross result, after the addition of outside income to the revenue received from the direct operation of the railroad property.

Fixed Charges include first, taxes that the company is forced to pay both the State and the Federal Government; second, any money expended for hire of equipment from other properties. This hiring and loaning of equipment will be discussed in detail in later chapters. Third, and in many cases the most important item, is Fixed Charges — the interest obligations of the company. As has been shown previously railroad development in this country has brought about a much more rapid increase in bonded indebtedness than in stock capitalization. For that reason this item of fixed charges has to be scrutinized with greater care now than at any other time.

Net Income is the balance left after all these operations and all charges against the revenues of the company from whatever sources received. That is, it is the net balance available for distribution to the partners in the enterprise — the stockholders.



## CHAPTER IV

### OPERATING EXPENSES\*

#### Seven General Accounts

The operating expenses of almost all the railroads in the United States are classified according to rules prescribed by the Interstate Commerce Commission. The primary accounts are all embodied under seven general accounts, as follows:

1. Maintenance of Way and Structures.†
2. Maintenance of Equipment.
3. Traffic Expenses.
4. Transportation Expenses.
5. Miscellaneous Operations.
6. General Expenses.
7. Transportation for Investment — Cr.

#### Explanation of Accounts

1. Under Maintenance of Way and Structures fall expenses for the repairs and renewals of machinery and tools, for repairs of roadway, track, tunnels and subways, for ballasting, for repairs and renewals of switches, frogs, ties, fences, bridges, culverts, stations, shops, buildings, etc., likewise according to a ruling of the Interstate Commerce Commission depreciation of track, roadway, etc. (optional).
2. Under Maintenance of Equipment fall expenses for the repairs and renewals, as well as depreciation of locomotives, passenger cars, freight and other cars and of steamboats and for the maintenance of shop machinery, etc.

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\*Note: "Accounting Regulations of Interstate Commerce Commission," p. 17.

†*Styl'd Maintenance of Way in this book.*

3. Under Traffic Expenses fall wages of officers directly in charge of traffic, freight, passenger, baggage and other agents, expenses of outside agencies, advertising, fast freight lines, industrial and immigration bureaus, etc.
4. Under Transportation Expenses\* fall wages of station employes, clerks, yardmen, flagmen, watchmen, engineers and trainmen, cost of dispatching trains, expenses for telegraph and station service, cost of fuel and supplies for locomotives, expenses for water supply, loss and damage, operating joint yards and terminals (net), etc.
5. Under Miscellaneous Operations fall expenses of dining and buffet service, hotels and restaurants, grain elevators, stockyards, producing power sold, etc.
6. Under General Expenses fall salaries of general officers and office clerks, expenses for legal service, insurance, etc.
7. By means of this account "Transportation for Investment — Cr." operating expenses are credited with the cost of transportation on revenue trains of men engaged in and material for construction, which expense is concurrently charged to various property accounts.

### **How Accounts are Grouped**

It appears at once from the nature of the expenses which fall under these headings that the amount of the expenditures under one (1) and two (2) is, to a considerable degree, subject to the control of, and other things being equal, reflects the conservatism or lack of conservatism in the road's management. On the other hand, under three (3), four (4), five (5), and six (6), fall expenditures which are wholly obligatory in that while they fluctuate each year with the volume of business, train mileage, etc., they are outlays which are for the most part incident to the present conduct of the road's traffic.

\*Note: Where railways operate water lines their expenses include the account "Transportation-Water Lines" (in this text included in "Transportation Expenses.")

These subdivisions of the operating expenses may then be divided into two classes:

A. Maintenance Expenses.

B. Traffic, Transportation, Miscellaneous Operations, General Expenses, and Transportation for Investment — Cr.

The classification of Operating Expenses, as above, is in accordance with a ruling of the Interstate Commerce Commission issued July 1, 1914. For the seven years prior to July 1, 1914, Operating Expenses were sub-divided into five accounts, viz: (1) Maintenance of Way and Structures; (2) Maintenance of Equipment; (3) Traffic Expenses; (4) Transportation Expenses; (5) General Expenses. For a number of years prior to July 1, 1907, there were but four subdivisions of Operating Expenses in general use; viz: — one and two, as above, Conducting Transportation and General Expenses.



## CHAPTER V

### MAINTENANCE EXPENSES\*

#### **Significance to Investors**

There are many railroads in the United States whose maintenance outlays have been, and are, clearly inadequate. Many more railroads are found, however, whose maintenance outlays have been heavily surcharged each year. Too often investors are deceived by the general statement in the annual report that "the management is gratified to be able to say to the shareholders that the close of the fiscal year finds the property of the company in as good condition as it was last year." This is not sufficient.

Keen competition and the teaching of the numerous reorganizations have forced upon the managers the necessity of charging to income items which were formerly charged, and from an accounting standpoint, often might properly be charged to capital account. So the management should be able to say, in lieu of the above, that the improvement work has so progressed during the fiscal period as to keep the property substantially abreast of its competitors. There are few railroads in the United States whose financial policy has been of a constructive order, which cannot, with earnings as they have averaged in the past several years, fully maintain their property and pay their fixed charges. There are many, which as the event has proved, could not do this and, in addition, pay dividends.

#### **What Analysis Will Show**

Analysis of the yearly expenses for Maintenance of Way and for Maintenance of Equipment will show distinctly whether or not a road is becoming more liberal in that regard.

\*Note: "Accounting Regulations of Interstate Commerce Commission," p. 17.

Comparison of the maintenance expenses of different roads operating under like conditions will tend to establish the relative policy pursued by each.

As will be shown in subsequent chapters, a consideration of maintenance expense is vital to every investor who desires to carefully analyze individual railroad companies. He must be careful, as shown above, not to compare the maintenance expenditures of a Southwestern Railroad with those of Eastern Trunk Lines. He can follow, and follow carefully, the growth or lack of growth in maintenance expenditures of any one property over a period of years.

It will be immediately appreciated that maintenance is an item which may be used either to make a showing unduly favorable or to cover up a considerable earning power. Subsequent chapters will give, roughly, satisfactory average maintenance charges over a series of years. This will assist the investor in ferreting out when over-maintenance or under-maintenance exist, if either.

Just as industrials during the war period were able to write down their plant accounts to a very low basis and as a result show only moderate net returns for stockholders so it is possible for a railroad to do so — to a lesser degree, on account of specified accounting, to be sure — but still to a degree that merits study. Maintenance expenditures in the years following the return of the roads to private operation have come in for considerable discussion. For that reason careful study of this item is suggested. Such study will undoubtedly show that in the post-war readjustment period under-maintenance of our railroads was by no means as prevalent as many financial journals have led us to believe.

## CHAPTER VI

### MAINTENANCE OF WAY\*

#### Using the "Per Mile" Basis

Taking two roads in good condition, *traversing the same territory and meeting with like conditions of traffic*, etc., a cursory study as to their maintenance will establish which of the two is following the more conservative policy. The best standard to be followed by the average student of railroad reports is to reduce the Maintenance of Way Expenses to a "per mile" basis. Take the total expenses under this head and divide them by the average number of miles operated for the period under review. A certain amount must be appropriated each year for the maintenance of the roadway and structures, whether the business of the road be large or small. While these expenses must of necessity vary somewhat with the density of traffic, yet it by no means follows that a road with a density of 1,000,000 ton miles per mile of road should spend for Maintenance of Way ten times as much as another road which has a density of but 100,000 ton miles per mile of road. So it cannot be said that a road, the Operating Revenues of which are \$10,000 per mile, should spend ten times as much for Maintenance of Way as the road which earns but \$1,000 per mile. It follows that one road may appropriate 25 per cent of its gross for a given period for Maintenance of Way and yet not spend so much relatively as the road which so appropriates but 10 per cent of its gross.

#### Comparisons and Qualifications

Neither the density of the traffic nor the extent of Operating Revenues determines the fair requirement for Maintenance of Way. Conditions peculiar to each road will mar the comparison

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\*Note: "Accounting Regulations of Interstate Commerce Commission," p. 17.



between the amounts per mile expended by different roads. One road has a regular profile, as the Northern Pacific; another traverses a mountainous country, as the Atchison; another obtains its ballast from its own gravel pits, conveniently located; another its ties with advantage; yet another has many and expensive bridges and tunnels to maintain, etc., etc. One road may expend but \$800 per mile for Maintenance of Way and yet better maintain the standard of its property than another road which expends an average of \$1,000 per mile. Some roads have branch lines where it would be wasteful under existing conditions of traffic to expend more than \$500 or so per mile. The small expenditures on these branch lines would reduce considerably the average outlay for the system, yet it would not follow that this relatively small average outlay was working to the disadvantage of this system with reference to competitive business.

Obviously the road with a considerable mileage of second and third tracks *should require a larger expenditure* "per mile of road" for Maintenance of Way than the road with few or no additional main tracks. Where the roads to be compared have double tracks, comparison should be made of the Maintenance of Way "per mile of single main track," although it should be borne in mind that it costs more, under like conditions to maintain two miles of single track than one mile of double track. Another modification arises from the fact that the nature and extent of the business of certain roads necessitate the maintenance of a relatively large percentage of side and passing tracks.

### **Reasons for Increase**

During recent years Maintenance of Way Expenses have shown a natural tendency to increase. Railroads which in the past have used 75 to 80 pound rail in main track have made their renewals largely with the more costly 90 and 100 pound rail; likewise 50 to 60 pound rail has been replaced with 70 to 80 pound rail. The heavier rail has been found necessary owing to the increasing use of steel equipment and larger locomotives. The use of this heavy equipment has compelled the

railroads to replace and strengthen bridges, culverts, and embankments, and to spend large sums for ballasting, etc. Likewise ties, rail joints, and other materials, have considerably advanced in cost.

It is, therefore, safe to say that when a railroad's Maintenance of Way Expenses average below \$900 to \$1,200 per mile of road these expenses should receive careful scrutiny by the intending investor. It is a sign of possible danger!

### **Ruling of the Commission**

As stated in a previous chapter Maintenance of Way Expenses now include accounts for Depreciation. The ruling of the Commission dated July 1, 1914, follows:

**“Depreciation of Fixed Improvements.** — Depreciation accounts, in which to include uniform monthly charges to cover the depreciation of fixed improvements, have been provided for the purpose of creating reserves which will meet or reduce the amounts otherwise chargeable, as may be appropriate, to operating expense or to profit and loss accounts to cover property retired. Such depreciation charges shall be based in each instance upon the percentage of the original cost (estimated if not known), ledger value, or purchase price of the property determined to be equitable by the carrier's experience and best sources of information as to the actual current loss from depreciation. A statement of the bases used by the carriers for computing these charges shall be included in its annual report to the Commission. Until further directed the use of depreciation accounts for fixed improvements is optional with the carrier.”

This makes “Maintenance” a much truer picture and increases its importance in an analysis of a railroad security.

## CHAPTER VII

### MAINTENANCE OF EQUIPMENT\*

#### **Tests to Apply**

Comparison of the Maintenance of Equipment Expenses "per mile of road" avails little. The best basis for testing the sufficiency of these is to ascertain the average amount expended on equipment per unit of service rendered by the equipment; that is, the average outlay per locomotive per mile run, per freight car per mile run, and per passenger car per mile run. Maintenance of Equipment depends not alone upon the amount of equipment to be maintained, but also upon the service rendered by the equipment.

It stands to reason that the Erie Railroad, with a freight density, as of 1917, of 4,643,434 ton miles and a passenger density of 286,998 passenger miles per mile of road, must expend more "per mile of road" for Maintenance of Equipment than the Atchison, with a freight density, as of last year, of 1,143,743 ton miles, and a passenger density of 137,648 passenger miles per mile of road. The relatively larger volume of business done or work performed by the Erie requires a relatively larger amount of Equipment and a greater service to be rendered by its equipment. Thus, it will be found that Maintenance of Equipment Expenses have usually a direct relation to the road's freight and passenger density, this relation being affected to a considerable degree by train and car loading and other essential factors.

An example will tend to establish that equipment maintenance has necessarily no relation to gross earnings. Suppose the tonnage of one road consists altogether of low-class freight, as coal or iron ore, and the tonnage of another road wholly of high class freight. Each road earns \$20,000 per mile. The density

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\*Note: "Accounting Regulations of Interstate Commerce Commission," p. 17.

of the first road's traffic and, as a consequence, the service rendered by its equipment, must be far greater than that of the second road. The business of the one road might be successfully conducted with one-third of the equipment and power required by the other: *Ergo*, an outlay of \$2,000 per mile for equipment maintenance on the road with low-class tonnage might be no greater, relatively, than an outlay of \$1,000 per mile on the other road.

### **Normal Maintenance Requirements**

It may be said that under conditions prior to the war, an average of \$2,500 to \$3,000 per annum per locomotive, \$75 to \$85 per annum per freight car and \$750 to \$850 per annum per passenger car approximated normal maintenance requirements. All this depends much upon the character of equipment required in the service. It usually costs less, for example, to purchase and maintain coal cars and flat cars than box cars and refrigerator cars. No argument is necessary to show that it must cost more per unit to maintain a small equipment than a larger one.

Among other important considerations which bear upon the cost of maintaining a road's locomotives and cars may be mentioned the location and equipment of its shops.

There are many roads where, although maintenance both for roadway and equipment was clearly surcharged, the extent of the excess of maintenance over normal requirements could not be taken as earning power. Take, say, during their rehabilitation period two railroads in a run-down condition as distinct from the Lehigh Valley. While the Lehigh Valley has not usually reported a surplus much in excess of dividend requirements, yet it should be able to pay steadily reasonable dividends, for the reason that when there comes a bad year, there is, and for years has been, abundant opportunity for curtailment of maintenance expenses. After reorganization, in the case of the run-down properties, the needs were so unusual as to make imperative extraordinary charges to operating expenses for maintenance. The excess of these expenses over normal requirements could be considered only as offering a promise of

future dividend-earning capacity. It could in no way be taken as an immediate margin of safety.

### **Equipment Depreciation Ruling**

*Following the rulings of the Interstate Commerce Commission, a majority of the railroad companies charged to Maintenance of Equipment, amounts for depreciation varying from six per cent to one per cent and less.*

*From even a casual examination of the railroad reports for the past fiscal year, it is apparent that until the Commission shall specify the exact rate to be charged on account of depreciation of equipment, the desired result for which the law was enacted will not be attained.*

Hereafter each railway in its report to the Commission must explain the basis used in charging depreciation as per the following rule of the Commission.

“The various depreciation accounts shall include uniform monthly charges representing the depreciation of equipment. These charges shall be based upon the percentage of the original cost (estimated, if not known), ledger value, or purchase price of such equipment determined to be equitable from the carrier’s experience and best sources of information as to the average current loss from depreciation. A statement of the percentages used by the carrier for computing these charges, together with the estimated life of the equipment upon which such percentages are based, shall be included in its annual report to the Commission.

“Depreciation charges with respect to any equipment shall cease when the difference between the ledger value and the estimated scrap value shall have been credited to the accrued depreciation account.”

### **Depreciation Rates**

The following table indicates the rates which were at a recent time under more or less normal conditions reported in

use by a number of important railways in computing depreciation of equipment:—

	Locomotives %	Passenger Train Cars %	Freight Train Cars %	Work Equip- ment %
Atlantic Coast Line R.R. ....	3	2*	3	2
Baltimore & Ohio R.R. ....	4	3	3 to 5	6
Boston & Maine R.R. ....	3	2	2	2
C. R. R. of N. J. ....	4	3	4	4
Chesapeake & Ohio Ry. ....	11½	11½	11½	11½
Chi., M. & St. Paul Ry. ....	1	1	1	1
C., C. C. & St. L. Ry. ....	2	2	2	2
Dela., Lack'a & W. R. R. ....	5†	21½†	6†	6†
Erie R. R. ....	3	3	4	4
Great Northern Ry. ....	5‡	4	‡	‡
Illinois Central R. R. ....	3	3	4	5
Lehigh Valley R. R. ....	2¾	1¾	1¾ to 2¼	—
Maine Central R. R. ....	3	2	2	2
N. Y. Central & H. R. R. R. ...	2	2	2	2
Norfolk & Western Ry. ....	3	3	3	3
Seaboard Air Line Ry. ....	2	2	2	2
Southern Ry. ....	2	2	2½ to ¾	2¾

### Charging and Crediting Depreciation Reserve

As an example of the method used by the railroads in charging and crediting Depreciation Reserve the following table is of interest:—

#### Reserve for Depreciation of Equipment Pennsylvania R. R. 1915

Credit Balance January 1, 1915 .....		\$17,461,707
Credits during year 1915 —		
From Charges to Operating Expenses		
Depreciation .....	\$6,177,124	
Renewals .....	383,636	
From Salvage, etc. ....	1,186,526	
Amounts charged to other companies for depreciation on P. R. R.'s equipment used by them .....	1,705,473	9,452,760
<b>Total Credits .....</b>		<b>\$26,914,467</b>

\*Dining cars 5%.

†Less estimated salvage value.

‡On steam locomotives rates vary from 3.33% to 7.14% and on electric locomotives rate is 10%; on freight and work cars rates vary from 3.33% to 6.67% (box cars 4% stock, coal gondolas, oil tank, etc., 5%).

Less —			
Equipment Retired:			
Locomotives .....	\$2,364,766		
Passenger Cars .....	1,517,653		
Freight Cars .....	2,775,645		
Work Equipment .....	110,743		
Floating Equipment .....	108,756	\$6,877,563	
		<hr/>	
Credit Balance December 31, 1915 .....		\$20,036,904	
To maintain the standard and value of the equipment there has been expended out of the above for new equipment .....		\$13,978,155	
		<hr/>	
And for the balance unexpended, new equipment has been ordered under contract .....		\$6,058,749	

### Various Roads' Expenditures

The following table for 1914–15 indicates the approximate amounts expended under more or less normal conditions by various railroads for repairs and renewals, also the amounts charged for depreciation of equipment. The methods of calculation used by the companies enumerated below, differ radically. Practically no two roads mentioned below follow the same rule in computing depreciation of equipment and, likewise, the per unit of equipment expenses of certain roads, for example, the Atchison, Topeka & Santa Fe Ry. includes certain amounts charged to superintendence, injuries to persons, shop machinery, maintaining joint equipment at terminals, etc. The table follows:

	Per Locomo- tives	Per Passenger Car	Per Freight Car
Atch., Topeka & Santa Fe Ry. ....	\$4,600	\$1,204	\$129
El Paso Southwestern Ry. ....	2,927	1,083	105
St. Louis Southwestern Ry. ....	*2,295	*642	101
Union Pacific R. R. ....	3,591	1,021	96
Seaboard Air Line Ry. ....	2,096	734	54
Atlantic Coast Line R. R. ....	*2,213	*850	*88
Minneapolis & St. Louis Ry. ....	*2,775	*607	*80
†Pitts. & L. E. R. R. ....	*2,404	*1,500	*100
‡New Orleans, Mob. & Chi. R. R. ....	*1,952	*692	*64

\*Approximate. †Year 1914. ‡Year 1913-14.

For roads of Class 1 (having annual operating revenues above \$1,000,000) for the fiscal year 1914, the average cost of repairs per unit of equipment was as follows:\*

	<b>Locomotives</b>	<b>Freight Cars</b>	<b>Passenger Cars</b>
United States .....	\$2,812	\$80.47	\$634.45
Eastern District .....	2,812	81.74	600.19
Southern District .....	2,759	88.80	757.54
Western District .....	2,836	74.52	637.41

The average cost of repairs, renewals, and depreciation per unit of equipment was as follows:

	<b>Locomotives</b>	<b>Freight Cars</b>	<b>Passenger Cars</b>
United States .....	\$3,214	\$105.06	\$779.37
Eastern District .....	3,252	107.53	793.28
Southern District .....	3,142	115.38	904.02
Western District .....	3,198	96.43	789.60

The figures for the year 1914 are given because they represent what appears to be a normal cost. Examination of maintenance charges for war and post-war years should simply take into consideration the average price advance and subsequent decline.



\*Statistics furnished by Bureau of Railway Economics, Washington, D. C.



## CHAPTER VIII

### TRAFFIC AND TRANSPORTATION EXPENSES, MISCELLANEOUS OPERATIONS, ETC.

#### **Nature of these Expenses**

As previously suggested, under these subdivisions of the operating expenses fall those expenses which, as distinct from Maintenance of Way and Maintenance of Equipment, must be taken as in large part being in the nature of a fixed or obligatory charge. They relate and are incident to the immediate conduct of the road's business, and like those commonly called "fixed charges" — interest, taxes and rentals — their payment cannot long be delayed. If a road is hard pressed, means may be found whereby the payment of a portion of these expenses can be postponed but only for a short time. In the discussion as to maintenance expenses it was made clear that those expenses are, under necessity or in the discretion of the management, capable of curtailment. It will be found that the amount per mile of the Transportation Expenses has a general relation to the traffic density. This results from the fact that these expenses depend largely upon the train mileage; engine mileage also is an important factor. As density increases, other things, as trainload and carload, being equal, the train mileage increases.

#### **Essentials to Consider**

To the average investor the essential thing to consider is the percentage of Operating Revenues required for these groups of Operating Expenses. Where this and the percentage of Gross required for Fixed Charges is given, it is seen what remains for maintenance and dividends. The questions of train and engine mileage, train and car loading, ton and train mile cost, and earnings, etc., are of extreme interest and should be carefully dealt with. These will be passed over here in favor of the

more vital considerations which reflect all these — the bearing of operating expenses (other than maintenance) upon gross earnings. It is not far from the truth to say that, for all the railroads in the United States, these expenses did not require for the year 1915–16 more than 40 per cent of the total gross earnings. War conditions and Federal operation naturally altered later statistics but there is now (1924) being witnessed, a gradual return to normal.

Traffic, Miscellaneous Operations, and General Expenses have no such relation to traffic density as have the Transportation Expenses. They tend to constancy and vary but little with the amount of business done. These expenses are often relatively greater on a small than on a large road. As Traffic, Miscellaneous Operations, and General Expenses make up but a small part of the operating expenses, and as they partake of the nature of Transportation Expenses, as distinct from Maintenance Expenses, it is right here simply to class them with the Transportation Expenses.

### **Two Roads Compared**

Where, in the comparison of two roads with like character of business, it is found that the Transportation Expenses of one require a relatively larger percentage of gross than in the case of the other, it means one or both of two things: either that, with relatively like rates for the work performed, the one road is not conducting its business with the same degree of economy as the other, or that, with like relative economy in the conduct of its business, the rates received by it for work performed are relatively smaller. In the use here of the word "economy," it is understood that the measure of economy is net results.

To show the significance of this percentage to the investor, consult for example, the records of the Chicago Great Western and the Atchison, Topeka and Santa Fe. The character of the tonnage of these two roads is very similar. For the year ending December 31, 1917, Operating Expenses other than Maintenance consumed 41.1 per cent of the Great Western's total income against ~~43.2~~ per cent for the Atchison. These expenses

have required a very large percentage of the Great Western's total income each year for the last ten years, and their ratio to total income has shown little tendency to become less. When it is remembered that these expenses partake of the nature of a fixed charge upon gross, the full significance is apparent.

Let it be assumed that the annual interest, taxes and rentals had required in 1917, 20 per cent of the gross for both the Great Western and the Atchison. Of the Great Western's gross, then 61.1 per cent would have been consumed by these "fixed" charges, leaving 38.9 per cent for maintenance and dividends. Of the Atchison's gross, but 54.2 per cent would have been consumed by "fixed" charges and 45.8 per cent would have been left for maintenance and dividends. It is clear that the margin of safety for dividends would have been far greater for the Atchison than for the Great Western. The actual margin of safety for the Atchison was greater than has been indicated here, because interest, taxes, and rentals required only about 15.4 per cent of the 1917 total income against 24.3 per cent for the Great Western.

While the larger percentage of gross required for these groups of Operating Expenses in the case of one road reflects what has been called "relatively less economy" in operation, yet this by no means implies a relative lack of efficiency in the management. A railroad might be operated with the highest degree of efficiency, yet the average rates received, and consequently the gross earnings, might be so small as to make these expenses bear a very high ratio to the gross.

### **General Rule**

*When rates, trainloads, etc., tend to constancy, the ratio of Transportation Expenses varies inversely with Operating Revenues.*

It is shown in what follows that the margin for maintenance and dividends may be greater on a road with large Operating Revenues per mile, where the Operating Expenses other than Maintenance require, say 42 per cent of the gross, than on a road with small Operating Revenues per mile, where those

expenses require but 35 per cent of the gross. For the first road 20 per cent of the gross might be ample for maintenance, while 35 per cent of its gross might be an insufficient allowance for the second road. The fact remains after all, that, other things being equal, where these expenses *are relatively larger*, the margin of safety is *relatively less*.



## CHAPTER IX

### THE OPERATING RATIO

#### Has It Significance?

What has gone before leads naturally to the discussion of the Operating Ratio in its bearing upon this question of earning power. It is with great difficulty that many investors are dissuaded from the belief that the Operating Ratio counts for all. Where a road is reported as operating at 50 per cent it is not uncommon to hear it said that "it cannot be done." Another road reports operating at 75 per cent, and it is said that, because of this high Operating Ratio, there is manifestly "abundant opportunity for curtailment in expenses." It may be stated at once that the Operating Ratio, or the ratio which operating expenses bear to gross earnings, has of itself *no significance whatsoever*. A few examples will tend to establish this fact.

The gross earnings (operating revenues) and operating expenses of roads "A," "B," "C," "D," and "E," may be taken as given in the table on following page. For the sake of argument, it is assumed that it required for normal maintenance of road and equipment no more "per mile of road" for one of these roads than for another.

It is clear that road "A," operating at 55 per cent, makes more liberal outlay for maintenance than roads "B," "C," and "D," which operate at 60 per cent, 65 per cent, and 75 per cent, respectively. Consequently road "A" has greater room for curtailment in its maintenance. Road "A" includes in its operating expenses sums in excess of normal requirements for maintenance, road "B" spends enough for maintenance, while the expenses of "C" and "D" fall considerably below the average requirements. The \$1,500,000 or 15 per cent of its gross, expended by road "D" for Maintenance of Way on its 5,000-mile road is by far a relatively smaller outlay than that of road "A," where \$1,250,000, or but 12½ per cent of its gross is

	A 1,000		B 1,000		C 2,000		D 5,000		E 1,000	
	TOTAL	PER MILE	TOTAL	PER MILE	TOTAL	PER MILE	TOTAL	PER MILE	TOTAL	PER MILE
Average Mileage Owned and Operated										
Operating Revenues	\$10,000,000	\$10,000	\$10,000,000	\$10,000	\$10,000,000	\$5,000	\$10,000,000	\$2,000	\$30,000,000	\$30,000
Maintenance of Way	1,250,000	1,250	750,000	750	1,000,000	500	1,500,000	300	3,000,000	3,000
Maintenance of Equipment	1,250,000	1,250	750,000	750	1,000,000	500	1,500,000	300	3,000,000	3,000
Ratio of "Maintenance" to Gross	25%		15%		20%		30%		20%	
Traffic and Other Operating Expenses	3,000,000	3,000	4,500,000	4,500	4,500,000	2,250	4,500,000	900	9,000,000	9,000
Ratio of "Traffic and Other Operating Expenses" to Gross	30%		45%		45%		45%		30%	
Total Operating Expenses	5,500,000	5,500	6,000,000	6,000	6,500,000	3,250	7,500,000	1,500	15,000,000	15,000
Ratio "Operating Expenses" to Gross	55%		60%		65%		75%		50%	
Net Earnings	4,500,000	4,500	4,000,000	4,000	3,500,000	1,750	2,500,000	500	15,000,000	15,000

so expended on 1,000 miles of road. Now, take road "E." It is seen that while Traffic and other Operating Expenses require the same percentage of Operating Revenues, "E," operating at 50 per cent, spends for maintenance 140 per cent more than "A," which is operated at 55 per cent. The table explains itself. It is unnecessary to give more examples (many more might be given) to show that the Operating Ratio of itself is of no significance. Wherever it may have significance it will be found to be wholly the result of accident.

### **"Rules," with Qualifications**

Were it not for the diverse conditions which affect peculiarly the question of maintenance in each individual road, it might be possible to arrive at certain definite rules as to the percentage of gross required for maintenance in different classes of railroads. One rule would suggest itself somewhat as follows under normal conditions: that for average maintenance requirements for Southern and Western roads the Operating Revenues of which amount to, say \$9,000 per mile, an annual appropriation of from 25 per cent to 28 per cent of the gross, would, under normal conditions, be ample. Another rule might be found to apply to such roads as the Central of New Jersey, the Delaware, Lackawanna and Western, etc., to the effect that, where gross earnings exceed \$40,000 per mile, an appropriation of from 17 per cent to 20 per cent of gross would be more than sufficient for average maintenance requirements. The mere statement of any "rule" must of necessity be clothed with many exceptions and modifications but it is valuable for use as a base for logical reasoning.

## CHAPTER X

### FIXED CHARGES

#### **Suggested Examinations**

Under Fixed Charges falls interest on the funded and floating debt, rentals of leased lines — embracing guaranteed dividends, etc. — taxes and, in some cases, sinking-fund payments. (The Interstate Commerce Commission directed that, beginning July 1, 1907, taxes are to be deducted from operating income and not included either in Fixed Charges or in Operating Expenses. In this text taxes are included in Fixed Charges.) The investor should examine the annual report carefully to ascertain whether or not the full interest on all the bonds outstanding at the close of the fiscal period has been charged in the Income Account for the period under review. Another important suggestion which may be made here is that the investor looks to ascertain *what the situation may be in the case of this or that road for future saving or increase in interest charges through refunding.*

Very few roads are required today to set aside each year from earnings specific amounts for sinking fund purposes. The Chicago, Burlington and Quincy's annual appropriation for sinking funds is today relatively larger than that of any other railroad in this country, excepting where annual payments are made in the retirement of short-time serial bonds. For the year ending December 31, 1917, the sinking fund payments of the Chicago, Burlington and Quincy, amounted to \$1,397,031. As such appropriations are in their nature extraordinary, and are used for the retirement of obligations of the company, they must be given due weight in the comparison of the respective earning power of different roads.



**Significance of Item**

As there is of itself little significance in the comparison of the average trainloads or average train miles, and as there is of itself no significance in the comparison of the Operating Ratio of different roads, so from the investor's standpoint, there is necessarily no significance to be attached to the fact that one road has a bonded debt of \$30,000 per mile, while the bonds outstanding on another road amount to but \$15,000 per mile. Likewise, the fact alone that the fixed charges of one road amount to \$10,000 per mile of road against \$2,000 per mile on another shows by no means that the bonds of the latter are more secure. The essential consideration here — as in the case of those quasi-fixed charges, the Operating Expenses other than Maintenance — is the ratio which these charges bear to Operating Revenues and the ability of the road to pay these charges. It stands to reason that the New York Central with say \$40,000 per mile gross receipts, could more easily provide for the interest on bonds aggregating say \$60,000 per mile than the St. Louis and San Francisco, with \$11,000 per mile gross could provide for interest on a bonded debt of say \$30,000 per mile.

It demands no proof to show that fixed charges of \$600 per mile on one road might be a heavier burden on earnings than fixed charges of \$1,000 per mile on another, although in each case the percentage of gross required for these charges is but 20 per cent. Take as Operating Revenues for the first road \$3,000 per mile, and for the second \$5,000 per mile. Let Operating Expenses, other than Maintenance, require 35 per cent of the gross for each road. Here is 55 per cent of gross consumed by "fixed" charges in each case. The one road has 45 per cent of \$3,000 per mile, or \$1,350 per mile for maintenance and surplus; the other has 45 per cent of \$5,000 per mile, or \$2,250 per mile remaining for maintenance and surplus.

**Fixed Charges as an Investment Test**

As a rule, where, on a basis of earnings such as these have averaged in recent years, the fixed charges of any given road

have required less than, say, 22 per cent of total income, and where the surplus after the payment of all operating expenses (including liberal outlays for maintenance), have amounted to not less than, say, 17 per cent of the total income, the interest on the road's bonds may be considered very secure. It should be noted that this is not the same situation as would be presented were it stated, for example, that the interest is secure where the fixed charges require, say, 50 per cent, or less of the net income, for the reason that operating expenses (including proper outlay for maintenance) might in one case require 90 per cent of the gross income against 60 per cent in another case. The fixed charges in the first case might require but 50 per cent of the net, or 5 per cent of the gross income; in the second case they might require, likewise, 50 per cent of the net, or 20 per cent of the gross income. Should the gross income show a proportional decrease of, say 15 per cent for each road, other things being equal, one road would show a deficit after fixed charges, while the other road would show a surplus.

The percentage of fixed charges varies in an inverse ratio with gross earnings.

### Comparison of Two Railroads

Observe the following tables wherein are given the income accounts of roads "A" and "B," the figures being stated both in full and reduced to a "per mile" basis.

TABLE I

	A		B	
Miles Operated . . . . .	1,000		1,000	
Operating Revenues . . . . .	\$10,000,000	\$10,000	\$10,000,000	\$10,000
Operating Expenses . . . . .	6,000,000	6,000	6,000,000	6,000
Net Operating Revenues . . .	4,000,000	4,000	4,000,000	4,000
Fixed Charges . . . . .	2,000,000	2,000	3,000,000	3,000
<i>Ratio of Fixed Charges to Gross</i>	20%		30%	
Surplus . . . . .	2,000,000	2,000	1,000,000	1,000

## Operating Expenses

Maintenance of Way . . . . .	\$1,250,000	\$1,250	\$1,250,000	\$1,250
Maintenance of Equipment	1,250,000	1,250	1,250,000	1,250
<i>Ratio of Maintenance to Gross</i>	25%		25%	
Traffic and Transportation	3,000,000	3,000	3,000,000	3,000
Miscellaneous Operations and General Expenses . .	500,000	500	500,000	500
<i>Ratio of Traffic and Other Operating Expenses to Gross</i>	35%		35%	

In the above comparison of the income accounts of roads "A" and "B" the operating expenses are in every respect alike. The fixed charges of road "A" require 20 per cent of the gross and of road "B" 30 per cent of the gross. The surplus of "A" amounts to \$2,000,000 and that of "B" to \$1,000,000.

Assume that operating revenues decrease 25 per cent, and that roads "A" and "B" are operated as before at 60 per cent. The income accounts would appear somewhat as follows:

TABLE II

	A		B	
Miles Operated . . . . .	1,000		1,000	
Operating Revenues . . . . .	\$7,500,000	\$7,500	\$7,500,000	\$7,500
Operating Expenses . . . . .	4,500,000	4,500	4,500,000	4,500
Net Operating Revenues . .	3,000,000	3,000	3,000,000	3,000
Fixed Charges . . . . .	2,000,000	2,000	3,000,000	3,000
<i>Ratio of Fixed Charges to Gross</i>	26.6%		40%	
Surplus . . . . .	1,000,000	1,000	0,000,000	0,000

## Operating Expenses

Maintenance of Way . . . . .	\$950,000	\$950	\$950,000	\$950
Maintenance of Equipment	700,000	700	700,000	700
<i>Ratio of Maintenance to Gross</i>	22%		22%	
Traffic and Transportation	2,350,000	2,350	2,350,000	2,350
Miscellaneous Operations and General Expenses . .	500,000	500	500,000	500
<i>Ratio of Traffic and other Operating Expenses to Gross</i>	38%		38%	

Here Maintenance Expenses are curtailed; Traffic and Transportation Expenses, while requiring a greater percentage of gross, are smaller, due to less business handled; and Miscellaneous Operations and General Expenses remain the same. The fixed charges remain the same and they require 26.6 per cent of road "A's" gross and 40 per cent of road "B's" gross. The percentage of gross required for "B's" fixed charges is 10 per cent greater than in the example given first above, while the percentage required for "A's" fixed charges is about 6.6 per cent greater than it was before the earnings decreased. Road "A" shows \$1,000,000 surplus, while "B's" surplus is entirely wiped out.



## CHAPTER XI

### STOCK OUTSTANDING IN ITS RELATION TO EARNING POWER

#### **Integrity of Net Earnings and Surplus**

What has gone before shows that a railroad's earning power cannot be measured by the surplus alone. Analysis of the Maintenance Expenses indicates the integrity of the net earnings, and consequently the integrity of the surplus. Where maintenance is found to be insufficient, the investor knows that earnings must be drawn upon to a greater extent, and that if the gross is not large enough to allow of a greater appropriation, future increases in earnings must be used, so far as they may be, to bring the maintenance outlay up to fair requirements. Where maintenance is found to be ample or to exceed normal requirements, the investor knows that a future increase in earnings may rightly be reflected in a larger surplus.

A comparison of the results of two companies, say, Railroad No. 1 and Railroad No. 2, is instructive as illustrating this point. The maintenance expenses of the former road for years prior to, say, 1916 were far below normal requirements, while Railroad No. 2 for years charged its expenses very fairly. Owing to its large annual fixed charges Railroad No. 1 found it impossible to appropriate a greater percentage of its gross for maintenance. For the year 1916 both of the lines showed large increases in earnings. The greater part of the increase of Railroad No. 1 was diverted to the maintenance accounts, while the increase in the earnings of Railroad No. 2 was for the most part carried into net earnings. Many railroads can safely cause a reduction in their maintenance expenses and thus add largely to their surplus; for example, the maintenance expenses in certain years of the Delaware, Lackawanna and Western, and of the Pittsburgh and Lake Erie were far above the necessary average requirements.

**Margin of Safety**

It has been demonstrated also in the foregoing chapters that where the Operating Expenses other than Maintenance, or where Fixed Charges are a relatively heavy burden on gross earnings, the margin of safety represented in the surplus is relatively small. For exactly those reasons that make greater or less the margin of safety represented in a road's surplus, it follows that the margin of safety for dividends for one road which earns 10 per cent on its capital stock is necessarily by no means so great as that for another road which also earns 10 per cent on its stock.

The capital stock of road "A," the Income Account of which was given on Page 46 (Table I), is, let us say, \$20,000,000 and that of "B," \$10,000,000. While each road earned 10 per cent on its stock, yet it is shown in Table II, Page 47, that with like decreases in gross earnings, "A" earned 5 per cent on its stock and "B" earned nothing at all. So the amount earned on the stock of one road might equal 15 per cent, and yet the margin of safety might not be so great as in the case of another road where but 10 per cent was earned.

An earning power of 10 per cent on Mobile and Ohio stock, or on Missouri, Kansas and Texas preferred, means far less as to the margin of safety for dividends than does an earning power of 10 per cent on Illinois Central stock, Chicago, Burlington and Quincy stock, or Louisville and Nashville stock.

In any comparison of the earning power of two roads, it is important to note, in connection with other essential facts, what percentage of the operating revenues is required to pay one per cent on the stock of each.

The capital stock of the New York, Ontario and Western, which operates about 568 miles of road, is about as large as that of the Chesapeake and Ohio, which operates 2,412 miles of road. The gross earnings of these roads were approximately, \$16,500 and \$23,000 per mile, respectively, for the year ending December 31, 1917. Inasmuch as the total gross earnings of the New York, Ontario and Western for that year was not over

16 per cent on its capital stock, it must be a long time before the earning power of the road will warrant a high price for the stock.

### **Earning Power**

That the rate of dividends paid on a road's stock does not determine the value of that stock is evidenced as well by the market value of such stocks as Central R. R. of New Jersey and "Lackawanna" as by the comparatively recent market value of such a stock as Great Northern Preferred or Missouri Pacific. The value of a stock is usually determined by the earning power rather than the desire of the road to pay dividends. This earning power is determined not only by the margin of safety represented in the surplus, but also by the stability or lack of stability of the operating revenues. The character of the tonnage and the natural resources and development of the territory traversed are to be considered in their bearing upon the stability of the road's traffic.

Certainly the earnings for any one year cannot be taken as demonstrating a road's ability to pay its interest or to pay dividends. The investor must consider the course of earnings for a series of years as well as the prospects for the future.

### **Financing Policies**

He must recall, when comparing the earning capacity of Illinois Central with that of Chesapeake and Ohio, that, while each of these roads may be earning 10 per cent on its present outstanding capital stock, the capital stock of Illinois Central includes about \$50,000,000 stock sold during recent years at par, the proceeds from the sale of which were used for improvements. No part of the present outstanding stock of the Chesapeake and Ohio represents stock sold by the company for cash. Nearly two-thirds of the outstanding capital stock of the Pennsylvania Railroad has been sold for cash during the past twenty years at considerably above its par value, and over two-thirds of the outstanding common stock of the Baltimore and Ohio

has been sold at par. The Chicago, Milwaukee and St. Paul, Great Northern, Canadian Pacific, Southern Pacific, and many other companies have secured large sums for improvements, etc., by the sale of capital stock.

### **Basis of Earning Power**

It must be said, finally, (as has been suggested in what has gone before) that absolute knowledge concerning the value of railroad securities can be gained only by a careful and personal examination of the physical condition of each property, as well as of the traffic relations and advantages and the conditions attaching to the same. In this way knowledge can be gained as to the opportunities presented in each case, both for the better handling of business already secured and for the securing of new business.

However, sufficient relative knowledge can be gained from a careful consideration of the items treated here, so that the investor can stand on his own feet, speaking figuratively, and discriminate between those railroads whose securities offer opportunities for successful investment and those which lack promise.





## CHAPTER XII

### CONCLUDING OBSERVATIONS

#### What May Readily Be Gained?

The client who studies railroad reports in the way which has now been outlined comes to know certain essentials concerning the value of a railroad security, the lack of which has been responsible for many of the difficulties with which investors have been beset. Perhaps it may prove helpful in conclusion to specify briefly certain of these essentials:

1. The comparison of gross earnings per mile of a small road with those of a large road, even though these roads extend through similar territory, does not prove the safety of a security.

The road of 8,000 miles may have several thousand miles of branches, traversing sparsely settled districts, so that the average earnings per mile may be smaller than those of the 1500-mile road, which has no branches and traverses thickly settled districts.

2. The facts concerning book value of the company's property must not be permitted to obscure other facts more important.

Book value of itself indicates nothing as regards the value of the company's bonds and stocks.

3. The surplus earnings for *one* year or the *average* surplus earnings for a number of years, do not provide an adequate basis upon which conclusions may be drawn.

The surplus of every year should be exhibited and the gross earnings and fixed charges as well.

4. The statement that the company's profit and loss account shows a credit balance of, say, \$10,000,000 cannot be considered conclusive.

Perhaps the balance sheet shows that \$10,000,000 is carried among the assets of the company representing unextinguished discount on securities sold.

5. Statements that 10 per cent is being earned on the stock, or that 5 per cent is being paid on the stock, or that the interest on a particular issue of bonds is being earned several times over, though facts, need examination.

The company may be earning several times the amount required to pay

the interest on a certain underlying issue of bonds, and at the same time may be reporting a deficit after paying the interest on all the issues of its bonds.

6. The fact that the entire fixed charges of the company amount to only \$500 or \$1,000 per mile, or that the bonded debt of the company is only \$10,000 per mile, against \$50,000 per mile in the cases of other companies whose bonds are recognized as proved investments, does not in itself prove the soundness of a security.

Earning capacity is what counts, as determined by the margin of safety test.

7. The view that a "bond" is safer than a stock must not be accepted uncritically.

*Some* stocks are far safer than *many* bonds. If intrinsic value is determined by earning capacity, or the ability to pay, and if an investment is to be chosen or discarded because of its value or absence of value so determined and not by the interest and dividend-producing quality, then there can remain no question of the permanent advantage as an investment possessed by good railroad stocks over a large class of railroad bonds.

### **What Must be Emphasized?**

These all point to one fundamental truth, that a security has to be judged individually on its merits. The methods for doing this have been pointed out in the preceding chapters.

Statistics, while by no means all conclusive in determining values, undoubtedly give an insight to the truth, and, rightly used, they will be found most helpful to all investors.

### **Is New Era Dawning?**

These statistical examinations, described in the preceding chapters, prove more useful when the results they reveal are interpreted correctly, from the viewpoint of the railroad problem and business conditions as a whole. Certain fundamentals in the railroad problem were sketched in Chapter I, and the question now is raised, what is the long-range outlook for the railroads?

The era of railroad pioneering and development witnessed financial interests operating with a free hand. Gradually, however, the conviction began to take shape that these financial magnates were diverting an undue proportion of the funds involved to their own profit. Public opinion, with the aim of safeguarding the public interest, adopted the attitude, expressed

in numerous legal regulations, hostile propaganda, court decisions, etc., of "thus far thou shalt go, but no farther."

The shippers, likewise, though the issue has long been befogged, have discovered that public opinion now has become too well informed to tolerate an unjustified diverting of railroad resources to them. Rates, henceforth, are likely to be regarded not as a "rake-off" for some corporation but a matter-of-fact payment for services rendered.

The situation with respect to labor is even more convincing, for public sympathy naturally sides with men rather than property and has looked with satisfaction for years upon the steady improvement in their conditions of labor won by the strongly unionized railroad employes.

The suppliers of railroad commodities, the sellers of rails, rolling stock, etc., to come now to the last factor — are they to continue exempt, to charge what they can; or will the same searching question which has been applied to financial interests, shippers, and labor, also be applied to them: "What is reasonable?" We think that this will be the case, and there are indications already that these suppliers of commodities, when they deal with companies providing the country's transportation service, will have to pass satisfactorily tests of fairness now only in the process of being evolved.

### **Future Possibilities**

Such would seem to be the logical outcome under such railroad legislation as the Esch-Cummins Bill known as "the Railroad Act of 1920." This act provided that the rates of the railroads should be put on a basis that would allow a return of between  $5\frac{1}{2}\%$  and  $6\%$  on the total invested capital. It was not intended, and subsequent developments have shown that this does not mean that every road should earn this figure on its outstanding capitalization. The railroads that have charged large amounts to maintenance over a period of years and have thus built up their properties in that fashion rather than through continued issuance of new securities are finding that invested capital is in excess of the bond and stock capitalization

outstanding. Roads of that type, Atchison for illustration, are thus able — after allowing for bond interest — to show earnings of better than \$10 a share on their stock while not earning a return of over 6% on their actual invested capital.

All earnings above 6% are to be divided on an equal basis with the Government. The Government's proportion of such goes to the aid of weaker roads. In 1920 and 1921 owing to continued high operating costs and the industrial readjustment prevailing, the roads as a whole failed to show anywhere near the 6% return allowed. For the year 1921, for example, the average return of all the roads in the country was between 2½% and 3% on the average estimated invested capital. Under normal conditions, based on the trial already given the "Railroad Act of 1920," it is to be believed that the railroads can ultimately earn the stipulated return without difficulty.

When a stable condition has developed, the next step will doubtless be a closer scrutiny of the expenditures of the various railroad companies. This must be so, because the bill as drawn is somewhat in the nature of a "service-at-cost plan." If expenses are allowed to grow at will — maintenance expenditures in particular — earnings covered up might well be in excess of the 6% allowed by the Law.

This is what leads us to feel that ultimately the supervision extended over our railroad companies must, in part at least, be extended to those industries which supply the commodities used by the railroads. This is so already in the case of labor, which is under the direct supervision of the Railroad Labor Board, an outgrowth of the Old War Labor Board. While such supervision is for the protection of Labor, the supervision outlined above will be for the protection of the railroad user — the public.

All this, viewing the matter broadly, represents a process of socialization, of bending private interests to the service of the public good. This process, while it does not in the long run add speculative flavor to railroad securities, does a very great deal to assure them sound investment standing.

## APPENDIX I

### TEST QUESTIONS

#### THE VALUE OF A RAILROAD SECURITY

**All the Test Questions can be answered directly from the Text discussion. You will find them helpful for purposes of review.**

1. Who are the parties at issue in the railroad problem?
2. State briefly the essentials of the recent railroad legislation.
3. Upon what fundamentally does the value of a railroad security depend?
4. Are railroad reports more, or less, uniform than those of industrials? Why?
5. What various items are included in the railroad's income account?
6. Into which account would each of the following items go: Repairs to locomotives? Salary of a General Passenger Agent? Wages of an engineer? Painting a station? Interest upon bonds?
7. From what sources can investors secure railroad statistics?
8. Define "operating ratio." Does it provide an essential test?
9. What is meant by the margin of safety?
10. Specify, and explain, the seven important suggestions, and cautions listed for investors.

## APPENDIX II

### ANALYSIS OUTLINE FOR RAILROAD SECURITIES

This Analysis Outline is given you to enable you to judge the soundness and progress of a Railroad enterprise. All the factors outlined below should be answered to your satisfaction under the principles set forth in the text on "Railroad Securities."

#### A. The Property

1. Location
2. Character of Traffic
3. Long or Short Haul
4. Freight Density

#### B. Capitalization

1. Bonded Debt per mile
2. Stock Outstanding per mile
3. Percent of Capital, Bonds — Percent, Stock

#### C. Income Account

1. Gross Earnings per mile
2. Operating Expenses
  - (a) Transportation Expense
    1. Past Record
    2. Rates
  - (b) Maintenance Expenses
    1. Maintenance of Way per mile
    2. Maintenance of Equipment per unit
3. Net Income
4. Fixed Charges
  - (a) Per mile
  - (b) Relation to Gross Earnings
  - (c) Relation to Surplus Remaining
5. Surplus for Dividends
  - (a) Per cent of Gross
  - (b) Relation to Dividends Paid

## APPENDIX III

### KEY PROBLEM ON RAILROAD INVESTMENT

#### **Relative to consideration of Railroad Earnings reports**

This key problem is presented to show that little weight should be given the simple statement that fixed charges are covered twice or two and a half times over. In considering a railroad investment, further investigation is absolutely necessary.

#### TAKE TWO RAILROADS — RAILROAD "A" AND RAILROAD "B"

Gross earnings of both for the year have been \$10,000,000. In both cases, fixed charges have been earned twice over. The fixed charges for "A," however, are \$2,000,000 a year against \$1,000,000 for Railroad "B." It can thus be seen that in Railroad "A," the ratio of fixed charges to gross revenue is 20% while in Railroad "B" it is only 10%.

The ratio of fixed charges to operating expenses in Railroad "A" is  $33\frac{1}{3}\%$ . The ratio of fixed charges to operating expenses for Railroad "B" is  $12\frac{1}{2}\%$ .

Could both these roads stand a reduction of 10% in gross earnings, given fixed operating expenses, and still continue to cover fixed charges? If not, can one? Which one?

After having decided in your own mind from the figures given above, actually subtract 10% from the gross earnings of each. On the basis that operating expenses as outlined above, and as figured from the ratio of fixed charges, remain constant, find net income available for fixed charges. What is the result?

This problem clearly shows that neither the ratio of fixed charges to net income or the ratio of charges to gross revenue is sufficient to determine the safety of a railroad bond investment.

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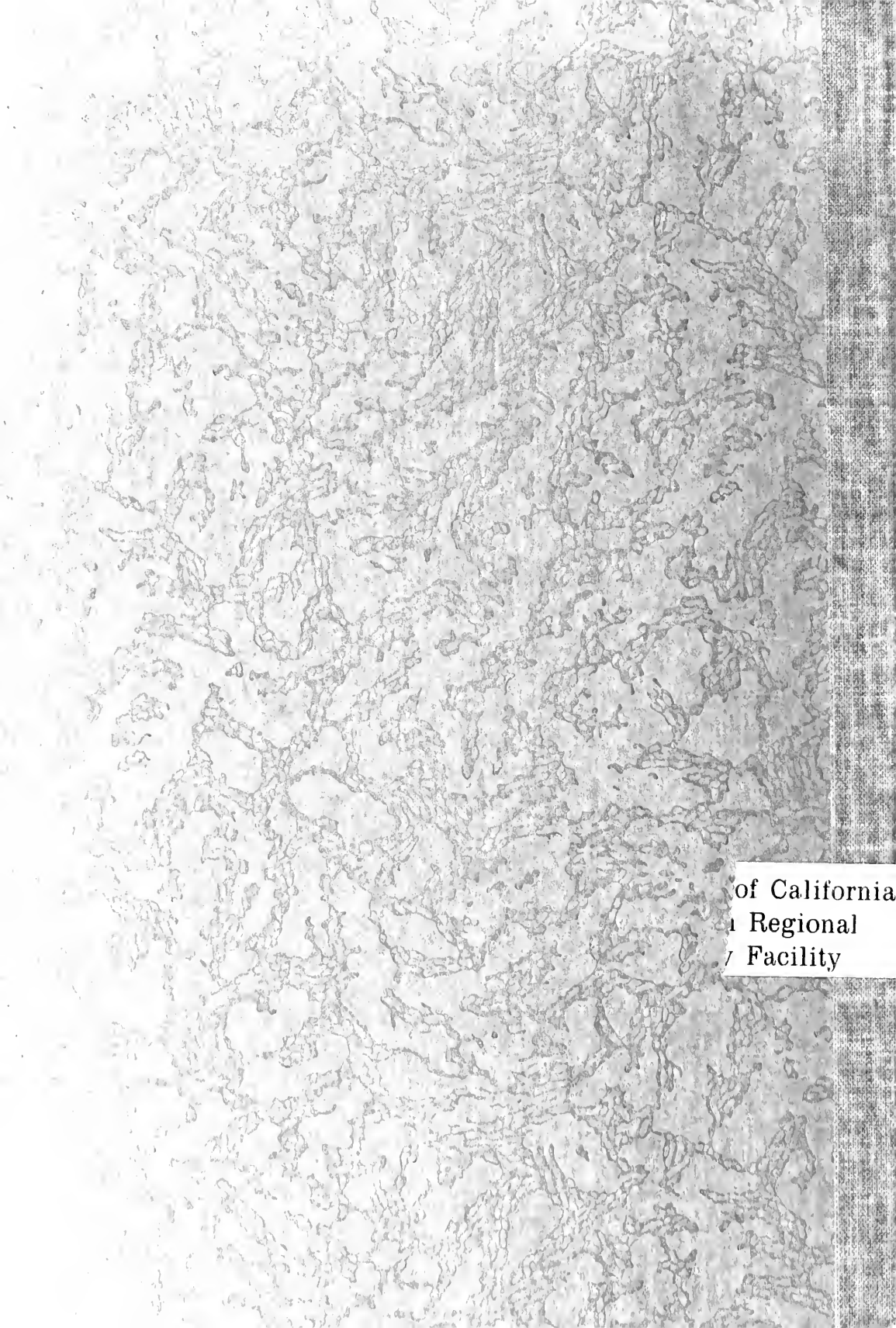
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